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ABSTRACT

This fact sheet describes vocational education within historical and legislative perspectives, focusing on how the components of vocational education programs can be adapted to include disabled students. Examples from a variety of postsecondary programs illustrate how assessment, curriculum modifications, devices and technology, testing, and job development have been made accessible to students with disabilities. Recommendations are included for administrators, instructors, support staff, and students. Annotated lists of readings and resources are included in the paper. (KC)

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EDUCATION FOR EMPLOYMENT

A Guide to Postsecondary Vocational Education for Students with Disabilities

Vocational education is the fastest growing area of education today, according to the American Vocational Association. It encompasses a wide range of career choices, offering training in more than 300 fields including such new areas as computer technology and energy.

The term vocational education refers to preparation for employment in an occupation that requires less than a baccalaureate degree but for which specialized education is required. To distinguish post-secondary vocational education from secondary level vocational education the term "technical education" is preferred by some. In this fact sheet the term "vocational education" is used to include specialized "technical" education regardless of the level on which it is found. On the postsecondary level, vocational education provides training for the beginning student in a particular trade or occupation and more advanced training for those who started specialized vocational preparation in high school.

The need to serve handicapped students is by no means a new issue in vocational education. The passage in 1968 of amendments to the Vocational Education Act of 1963 singled out the handicapped as a population for whom improved programs and services were urgently needed, and authorized specific funding to serve that population.

Participation in vocational education can be viewed as an essential pathway to employment for students with disabilities. Having marketable vocational skills is one of the most impressive credentials that anyone can present to a prospective employer. For students with disabilities, such skills are proof of their ability to perform specific job functions.

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This fact sheet presents information, resources and references concerning vocational education of disabled postsecondary students. Information and resources are given so that vocational administrators and instructors, vocational evaluators, counselors and other support staff can assess their efforts to provide equal opportunities for students with disabilities to participate fully in all facets of vocational education. For the student, practical suggestions are included for effective accommodation through both regular and special instructional arrangements.

Historical and Legislative Perspective

During the 200 years of our nation's existence, education has been called upon to respond to the needs and expectations of a society marked by continuous change. A major responsibility of education is the orderly and effective transition of youth from childhood to constructive participation in adult life. Vocational-technical preparation is an educational program which assists in this function.

Since the early 1970's there has been an appreciable increase in the national commitment to expanding and improving opportunities available to handicapped individuals. Congress has passed legislation guaranteeing the civil rights of handicapped persons in public education, vocational training, and job placement. Vocational educators have been profoundly affected by these recent federal laws, which guarantee that disabled students will be served in the least restrictive environment possible and be ensured an equal opportunity to participate in and benefit from programs and activities receiving federal financial assistance.

The three laws affecting vocational education for people with disabilities are the **Rehabilitation Act** of 1973 (P.L.93-112), the **Education of All Handicapped Children Act** of 1975 (P.L. 94-142), and the **Vocational Education Act** of 1963, amended in 1968 and 1976 (P.L. 94-482). The Rehabilitation Act of 1973 mandates broad civil rights coverage to all handicapped persons, while the Education of All Handicapped Children Act and the Vocational Education Amendments of 1976 provide more specific protections and federal funding for a more narrowly defined group of handicapped individuals. The Vocational Education Amendments of 1976 require that a minimum of ten percent of the basic state grant funds be used to provide up to fifty percent of the cost of educating disabled youth. States must match the ten percent set aside funds on a 50-50 basis.

The laws have been a strong incentive for including disabled students in vocational education. But disabled workers themselves have proven their value in the world of work. People with all kinds of handicaps have repeatedly demonstrated their reliability in performing useful and productive work. The President's Committee on Employment of the Handicapped reports that the work record of handicapped employees compares favorably with the non-handicapped population in every way—their ability to perform tasks, their safety records, their attendance, their advancement.

For Students: Where To Find Career Information

As students begin to consider vocational choices, the first step is to seek out as much information as they can find about the careers that interest them. A good way to start is to meet

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with a school guidance counselor, who can direct the student to sources and provide help in how to use them. Other places to find information are high school and college career information centers and public libraries. Important volumes to check in the library are the **Dictionary of Occupational Titles** and the **Occupational Outlook Handbook**. The first briefly describes and categorizes almost any job imaginable. The latter is published every other year by the Department of Labor and lists training, average salaries, work conditions, and future projections for hundreds of careers.

Students can write for more information from trade and professional organizations representing people in careers that interest them. **The Encyclopedia of Associations,** also found in most libraries, lists thousands of groups and unions along with descriptions and addresses.

Also useful are Career Information Delivery Systems (CIDS), which are computerized information banks giving information about occupations that fit the interests, aptitudes, training and other preferences or needs expressed by the inquirer. The systems are located on computers in 39 states at over 10,000 places across the country. (For the address of the location nearest you, see NOICC/SOICC Information Service on the resource list at the end of this fact sheet.)

In addition, each state has information about local job markets as well as future employment needs. This information is available from Offices of Research and Statistics (the usual title) in state Departments of Labor. Offices are listed with addresses in the **Occupational Outlook Handbook.**

A student may want to explore the possibility of an apprenticeship program. Such programs exist in over 700 different "apprenticeable" occupations such as graphic arts, upholstering, and electrical and plumbing careers. To find out about them, start with your high school guidance office. Also, contact the apprenticeship representative in your state's Department of Labor. Addresses are available from the U.S. Bureau of Apprenticeship and Training (see resource list).

People with disabilities are today successfully performing so wide a range of jobs that students can and should **first** evaluate their interest and **then** narrow down their choices by considering restrictions imposed by their disabilities. In some cases there are legal limitations on people with certain disabilities performing certain jobs, such as a blind person wishing to pilot an airplane. If some jobs seem hazardous to you or to the safety of others, or appear likely to aggravate your handicap, you would of course rule them out.

After identifying vocational areas of possible interest, students may find it helpful to contact people with similar disabilities who work in occupations under consideration. Those people can give a realistic picture of specific job requirements. To find help locating role models a student could contact the Mayor's or Governor's Committee on Employment of the Handicapped (see local telephone book or a HEATH state agency list). The state vocational rehabilitation agency, a center for independent living, or a state or local disability organization might also be helpful. Other sources are given on the bibliography of the fact sheet, **Career Planning and Placement Strategies for Postsecondary Students with Disabilities,** available free from the HEATH Resource Center.

A student may be eligible to receive services from a **state vocational rehabilitation agency.** These are public agencies, set up in each state to assist eligible disabled people with services they need to become employable. These services will vary from state to state. Vocational Rehabilitation (VR) might carry the cost of special equipment, readers, interpreters and other important aids. In some cases, the agency may provide full or partial funding for tuition and other educational expenses.

You should be in touch with a VR counselor during high school or soon after a disabling condition occurs. Some high schools offer a joint service between their guidance counselors and a VR counselor who is assigned to the school system.

Now, with as much information as you can find, you are ready to make some career decisions and enroll at a vocational-technical school, community college, or university of your choice.

Components of Vocational Programs

The primary function of a vocational school is to teach work skills to its students. But there are several things that the school needs to do to ensure that appropriate education is successful. This section will discuss vocational assessment, curricular modifications, technological devices, counseling, support for instructors, and job development and placement.

Vocational Assessment

Vocational assessment is the process whereby students gain insight into their vocational potential—their abilities, interests, and the work environment best suited to them. It can be both formal (using standardized tests) and informal (using observation, work tryouts, work samples, class tryouts, and other means). The process can take considerable time, sometimes several semesters. The assessment should be performed by persons qualified by training and experience for this function such as the school psychologist, vocational counselor or vocational evaluator.

Many counselors will have been trained in the use of standardized tests for measuring aptitude, interests, and achievement. However, they might not all be familiar with the assessment procedures particularly related to disabled students, such as work tryouts, work samples and vocational course tryouts. These three assessment techniques most nearly replicate actual working conditions and are particularly appropriate for students with disabilities.

Many different commercially-produced **vocational evaluation systems,** designed specifically for assessment of students with disabilities, are available for use by vocational-technical programs. The purpose of these systems is to provide a hands-on approach to the assessment of vocational strengths, weaknesses, interests, and abilities. An example of these systems is the Jewish Employment and Vocational Service Work Samples, which give students a chance to try out 28 different work samples. An example of a system where reading is not required (audio-visual techniques transmit instructions) is The Singer Vocational Evaluation System. Work samples can be more motivating, less anxiety-

producing, and more appropriate for a student with a disability than are most standardized tests. Lists of vocational evaluation systems can be obtained from the Eric Clearinghouse on Adult, Career and Vocational Education; the National Center for Research in Vocational Education; and in **Vocational Skills Assessment for Disabled Students** (see resource and reading lists).

After the testing is completed, the vocational counselor needs to meet with the student and then, if the student is also a client of the Vocational Rehabilitation Agency, with the Rehabilitation counselor. The vocational counselor should have for these meetings the test results, the student's school and medical records, records of relevant comments by parents or teachers, and references from former employers. The entire vocational assessment process will be enhanced if a student has already identified strong vocational interests and abilities through exploratory or prevocational courses, field trips or career guidance classes.

Vocational assessment is an ongoing process through which the counselor and student evaluate progress in classes, shops or work stations. Observations from those occasions should also be discussed in meetings with the student. During these meetings, or counseling sessions, the counselor and student together need to talk about the careers they are considering in terms of **task analysis** and **personal characteristics requirements analysis.**

One source for this type of information is the Materials Development Center—Stout Vocational Rehabilitation Institute's Job Analysis Exchange, which contains 207 completed job analyses (see resource list). The reading list at the end of this fact sheet lists books that provide examples of forms used for task analysis and personal characteristics analysis.

Curricular Modifications and Adaptations

There may be instances where a student is hindered by his/her disability from satisfactorily accomplishing a part of a vocational course as it is, but where if a minor change were made in the way the material was presented it could be successfully mastered by the student. It is important that students and instructors alike recognize that such curricular modifications are **variations in the presentation of information,** and in no way change the substance of the material.

One such area of difficulty is textbooks, where the language level may be highly technical and unfamiliar. Some schools have solved this problem for students with handicaps by taping some texts: audio tapes for students with visual or learning disabilities, video tapes (sometimes signed or captioned) for those with hearing or concentration impairments. Portland Community College in Oregon has produced these in its dental and automotive programs. Other schools have done similar work for other courses. Johnson County Community College in Kansas has developed sign-language vocabularies for terms used in the fields of data processing, electronics, and business (see resource list). The objective is to simplify and to illustrate the language in ways that make the words and concepts meaningful. Another solution to the problem of technical textbook language is a vocabulary-building seminar for students who need that help in a given area.

Instructors are also finding that models (made of paper mache, clay, string-and-glue, or other media) are successful aids for teaching students with various disabilities. Such hands-on learning is of course valuable for non-disabled students as well. **Puzzled About Educating Special Needs Students?,** found on our reading list, is a collection of materials on other curricular modifications that could also be used.

Technological Devices

The high level of technology achieved over the past years has brought with it an explosion of devices that enable many handicapped workers to handle tasks they would otherwise not be able to perform. Some of these devices (like elevating wheelchairs or reading machines) are used regularly by individuals in a variety of activities. Others (like one-handed typewriters, reachers, directional knobs) are specifically engineered to do particular work tasks. Some are simple or home made gadgets, while others are sophisticated equipment. Some are widely known and marketed. Others have been devised for specific individuals and have not yet reached public attention.

The purpose of technological devices is to provide the support that makes individual performance adequate to meet the demands of the workplace. In other words, such devices enable disabled workers to perform satisfactorily the same job that their non-handicapped colleagues perform.

For example, simple devices that may be used by persons with **mobility impairments** include folders, clamps, and high friction surfaces (such as rubber mats) that prevent objects from sliding. Typewriters and other equipment can be modified so that knobs, dials or keys can be manipulated from one side. For workers whose movements are unsteady, a larger typewriter keyboard or computer terminal increases accuracy. Reachers, lazy Susans, and knobs placed farther apart than usual are other useful devices and adaptations. Mouthsticks and head wands are successfully used by people who do not have use of their hands.

There is a wide range of sophisticated devices for use by **hearing impaired persons.** These include sound amplifiers, signaling devices using lights, buzzers or tactile vibration, and teletypewriters that send printed word over telephone wires. Amplifiers, lights, vibrators and teletype can be added to various pieces of work equipment to make them accessible to deaf and hard-of-hearing workers (see our Hearing Impaired fact sheet).

Perhaps some of the most remarkable technology has been developed for **blind and visually impaired persons.** Print magnifiers, "talking" calculators and machines that convert printed text into spoken words (Kurzweil Reader) are some examples. At a work station, large knobs with directional handles on machinery, tactile markings on measurement tools, and liquid level indicators (where a tone is sounded when the liquid being poured reaches the level to be measured) are useful adaptations for those who do not see. The American Foundation for the Blind publishes a catalog of aids and appliances for use by people with visual impairments.

Some instructors have been cre-

ative in improvising ways to modify tasks to compensate for a **short memory or attention span** (often a problem for learning disabled or head injured persons). In training for laboratory or food service work, for instance, racks have been devised to contain the exact number of items to work on, such as jars to be filled or envelopes to be stuffed so the worker doesn't have to keep count. Red lines on measuring devices or colors coded on parts to be assembled are other mechanisms that simplify tasks.

Where can one go to find devices that are available to buy, or to find out ideas that others use to simplify tasks of the classroom or workplace? Two excellent national computerized data banks of assistive devices are ABLEDATA and Accent on Living (see resource list). Local sources of information are community service organizations— chapters of the National Association of the Deaf, National Federation of the Blind, United Cerebral Palsy, Association for Children and Adults with Learning Disabilities, and others. Medical organizations (hospitals, rehabilitation centers, Easter Seal clinics, etc.) could also be helpful.

Another productive resource for learning about assistive devices is to visit a rehabilitation engineering exhibit. The Rehabilitation Engineering Society of North America on the resource list can inform you of the time and place of such exhibits. Some vocational/technical schools with large numbers of handicapped students send one or more of their counselors to the rehab engineering exhibit in their state or region to see the very latest in technology.

There are several books, magazines and catalogs that students and counselors alike should know about when seeking devices that other handicapped students have used successfully. They are listed, along with information about where to get them, on the reading list. These books describe and illustrate hundreds of assistive devices that help people perform a variety of tasks in offices, machine shops, hospitals and homes. **Tools, Equipment, and Machinery** is recommended as the most comprehensive.

A student and a counselor working together can compare available devices to identify which would be the most appropriate for the student's needs. A student who has been living and managing with disability for years may know what works best. A VR counselor, drawing on the resources of the VR agency, may be able to provide the necessary equipment.

Counseling

Individual counseling of students is a component of all postsecondary programs and includes guidance in areas of academic, personal, financial and career concerns. Counseling in vocational-technical schools covers the same areas, but concentrates more heavily on career guidance and/or placement.

Some suggestions to remember in assisting handicapped students to make decisions are:

- Encourage students to explore a variety of possibilities so they are not pressured into a particular field by parents or others.
- Know the local job picture. In some areas particular industries (health care or data processing, for instance) are actively hiring while others (perhaps forestry or certain types of manufacturing) are not. Students need realistic information about where jobs are available. Counselors might have to advise students to be prepared to relocate in order to work in certain fields. This is an important consideration for a person who depends on support services, accessible housing and transportation or medical facilities.
- Counselors from both the school and the VR agency can work together to provide coordinated guidance to the students.
- Counselors might discuss these suggestions with classroom instructors (perhaps through a workshop), since many students turn to their instructors for career guidance.
- Above all, avoid stereotypes. Disabled students need no longer be restricted to certain occupations previously considered "appropriate" for the disability classification.

Support for Instructors

In finding ways to adapt vocational courses to the needs of disabled students, the attitudes of instructors are of prime importance. According to one Disabled Student Services coordinator, "We find that the programs are most easily modified when the instructors have an open attitude and are willing to experiment with new ways of doing things. Instructors should know that their attitudes make a very real difference."

Instructors who are teaching handicapped students for the first time may need help from counselors or a coordinator of Disabled Student Services in envisioning ways to help those students succeed. An in-service workshop for staff focusing on handicapped people who are successful at their jobs can help create positive staff attitudes. These workshops can be planned with help from local disability organizations (including centers for independent living) and from books or films listed on the reading list.

In many schools a Disabled Student Services coordinator works with individual faculty members who have handicapped students in their classes. These one-on-one relationships make it possible to work out the best ways to teach specific students before problems arise. At Los Angeles Trade-Technical School, counselors hold monthly "teacher-counselor assessment" meetings to discuss the progress and/or needs of each handicapped student. Instructors should be encouraged to recognize students with deficiencies in basic skills and to refer them for remedial help in reading, written expression, or math.

Testing is an area in which instructors might have concerns. A student's disability may interfere with his/her ability to handle tests—either in physically manipulating the testing material or in understanding the instructions. Counselors can help instructors find ways to adapt the test situation **without changing the academic standards.** For instance a test could be given orally or on tape to a blind student, in a separate room without distractions to a student who has an emotional impairment, with an extended period to a student with a learning disability, or in an accessible location for a student whose mobility is impaired. The HEATH fact sheet **Measuring Student Progress in the Classroom** offers valuable suggestions for instructors, and is available free of charge from the HEATH Resource Center.

Job Development and Placement

Job development involves all the activities associated with identifying employers who are able and willing to offer positions of employment to graduates of the program once their training is completed. Many vocational schools have a person whose full-time responsibility is job development. In other schools the task is shared among all the vocational counselors. Some programs also send teams of students, as part of their education, to interview potential employers and investigate job possibilities, and then to report their findings to the counselors or to their classes.

The job development officer who has handicapped students as part of his/her school population has a special responsibility. Some of the employers contacted might never have considered a handicapped employee before. The developer will have to look carefully at jobs at each workplace and discuss them with management in terms of task analysis and personal characteristics analysis—that is, consider the specific tasks each job entails and what characteristics are required of the person who performs them. An experienced vocational counselor who has seen his/her students at work can make those judgments when he/she observes a specific job to be done.

With employers who have never hired handicapped people before, the job developer will need to be an advocate. The employer will need to be convinced that students, with their training and adaptive devices, will be an asset to the business. One counselor recommends that when approaching private sector business people, one use a Wall-Street vocabulary: words like benefits, cost-effectiveness, productivity, profits. Another says she often cites the DuPont Corporation's study of its 1,452 handicapped workers which found that 90% of them were average and above in job performance, stability and safety. One could also point to other local firms that have hired handicapped graduates of the school, or recommend articles like "Enabling the Disabled" in the **Harvard Business Review** (July–August 1982) and "Hiring Your First Handicapped Person" in the **Journal of Cooperative Education** (Fall 1981).

Still another job developer says that whenever a letter or advertisement comes to her attention with "equal opportunity employer" written in the margin, she makes an appointment to visit that company. She goes in with a positive attitude, says how glad she is to see that the company is an equal opportunity employer, and asks questions about the exact requirements of each job. She feels part of her success is that she is careful not to make potential employers feel defensive.

Job development requires the counselor to be ready at all times to check whatever he or she sees as a lead to employment opportunities. It involves working with industry, with agencies such as the local mayor's Office on Employment of the Handicapped or Equal Opportunity Commission, and with such disability organizations as a local Council for the Deaf or Job Opportunities for the Blind.

Other suggestions that job development people have offered include:

- Develop rapport with management of local businesses by having their representatives serve on the Board of Advisors of your school.
- Design a brochure showing the skills and successes of your graduates, including those with disabilities.
- Provide for placement follow-up visits to the job site to help employers and recent graduates in ironing out any problems.
- Host an Employer Recognition Banquet at the end of the year with awards to companies hiring the most students with disabilities. You might get sponsors to underwrite the cost of the dinner and/or awards.
- Remember to follow-up on any contacts you make in social, professional, or volunteer meetings who might be potential sources of jobs.

Suggestions for Instructors Working with Disabled Students

Each disabled student is a unique individual with varying degrees of ability and independence. If you—the instructor—are unsure whether or not a student needs help, ask him or her directly. The student will probably appreciate your asking. But recognize too that a person with a handicap wants to be as self-sufficient as possible, and so might well turn down your offer.

The following are some ways a student may need assistance in a vocational-technical classroom. A student who uses a wheelchair or has another **mobility impairment** may need more time to get around the classroom or work station or to handle new materials. The instructor could work with the student to be sure that the space is accessible, that the needed materials are within reach, and that enough time is provided to keep up with class activities. Containers may need to be firmly attached to work areas, and guards or shields added to machines.

A student who is **visually impaired** depends on non-visual means of learning. Instructors can help such students by describing in words what they point out or demonstrate to the class, and by allowing students to handle the materials. Audible signals and switches are also helpful. Furniture and equipment should be left in their same places, and if they must be moved, visually impaired students need to be shown and told the new locations.

A student who is **deaf or hard-of-hearing,** on the other hand, relies heavily upon the sense of sight. This student needs a seat near the front of the classroom with a clear line of vision to the instructor, who should avoid standing directly in front of windows or other light sources which cause a glare. If an interpreter is used to sign or cue to the student, remember to speak directly to the student, not to the interpreter. Visual warning devices on equipment are important. (Write for free HEATH fact sheet **Hearing Impaired Students in Postsecondary Education.**)

Learning disabilities affect the way people receive or process information, which may be perceived inaccurately and misunderstood. Students with this hidden handicap have difficulty in one or more areas of learning: reading, calculating numbers, memorizing, or working through conceptual problems. Learning disabled students are, however, able to compensate for their disability by practicing some of the techniques that special educators have developed. They are then capable of as much learning as other students. Instructors who have students with specific learning disabilities should discuss with them how they learn best. Such students should also be referred to a learning disability tutoring center if they have

not already had such support. Extended time for certain activities or the use of taped textbooks or tape recorders in the classroom could be allowed. Students may also need to work in areas where there is a minimum amount of noise or other distraction. (Further resources are listed in the HEATH fact sheet **The Learning Disabled Adult and Postsecondary Education.**)

Emotionally impaired students may have difficulty concentrating, completing tasks, or accepting criticism. Instructors can minimize confrontations by giving positive suggestions instead of criticism. Reprimands should be given in private, not in front of others. Behaviors should be discussed in terms of the goal of holding a job.

An instructor who feels unsure of a situation should discuss it first with the student directly. He/she lives with the disability and is experienced in making accommodations to meet his own needs. One could also consult a school counselor, rehabilitation counselor, or other support person through the school, community agency or a nearby center for independent living.

Further tips include:

- Peer support. A buddy system, pairing handicapped students with others who do not have a disability can provide valuable support in many ways. Instructors might use this idea for selected specific tasks or in the workshop.
- Be positive! You have an opportunity to make a very real difference in your students' independence and personal sense of dignity.

Student Organizations

Vocational clubs have been established in many fields of interest. They include the American Industrial Arts Students Association, the Distributive Education Clubs of America (DECA), Future Business Leaders of America (FBLA), Future Farmers of America (FFA), Future Homemakers of America/Home Economics Related Occupations (FHA/HERO), Health Occupational Students of America (HOSA), and Vocational Industrial Clubs of America (VICA). Each of these clubs includes both secondary and postsecondary divisions using the same name, except for Future Business Leaders of America. The postsecondary branch of that group is called Phi Beta Lambda.

One purpose of these student organizations is to develop leadership abilities among the members through competitive events such as public speaking contests or other group activities. These groups are good vehicles for building skills and making friends. Club leaders are encouraged to make active efforts to include their handicapped classmates in the clubs. (See the article "Serving the Handicapped in Vocational Student Organizations" on our reading list.)

Meetings should be held in accessible locations and publicized with both written and spoken announcements well in advance to allow disabled members sufficient time to make whatever special arrangements they may need. Clubs should also invite handicapped members to planning sessions so that competitions, for example, will always include some events where disabled students could compete. Several of the major vocational organizations (DECA, HOSA and VICA) have already developed some model competitive events that are suitable for all students—handicapped and non-handicapped—to do together.

Interagency Cooperation

Preparing disabled students for suitable employment is best accomplished with a high level of cooperation among such agencies as the state rehabilitation commission, the state education agency, the state employment commission, mental health, and other community service agencies. Lack of communication among agencies often results in the disabled student, who needs multiple programs and services, becoming lost in the shuffle between agencies.

Educators, administrators and policy makers at all levels have expressed their belief that only through a concerted effort in interagency cooperation and linkages can disabled students be assured full service and a smooth transition from school to work.

The Vocational Studies Center, University of Wisconsin-Madison has recently completed a study on interagency linkages. The result of this study is a handbook, **Vocational Education Models for Linking Agencies Serving the Handicapped,** designed to assist agency personnel in the development and implementation of interagency linkages to improve vocational education and employment opportunities for handicapped persons (see reading list).

Personnel Preparation

Vocational educators find it necessary to upgrade their knowledge continuously and stay current with new developments. At the same time, they now have the added responsibility of improving their ability to teach these occupational skills to disabled students. The infusion of vocational special needs concepts into vocational education courses requires a significant amount of cooperative planning and in many institutions it may require inservice training of faculty and key administrators.

Only a few states have adopted certification requirements that assure a specified level of teaching competencies for personnel who provide vocational instruction for handicapped students. There is therefore a need to provide meaningful inservice training to vocational educators and support staff to aid them in teaching handicapped students.

A systematic approach to inservice training has been developed by Dr. L. Allen Phelps. His manual **Instructional Development for Special Needs Learners: An Inservice Resource Guide** consists of seven modules which illustrate the process of providing instructional methods for teaching disabled students (see resource list).

Another way of making changes in personnel preparation of vocational educators is through participation in the National Association of Vocational Education Special Needs Personnel (NAVESNP) division of the American Vocational Association (AVA). This division was formed in 1974 to serve as a sounding board for vocational educators who work with disadvantaged and/or disabled students.

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The word equity is gaining widespread use in the field of education. As a concept, it recognizes that the determination of fairness is subjective, that in order to achieve equal results from some groups, unequal opportunities or special support may be necessary. Adaptations in education and at the workplace are making the concept operative for disabled vocational students.

SELECTED READING LIST

Career Guidance Materials for Use with Students with Disabilities: A Resource Catalog

Chaffey Community College, Educational Resource Center, 5885 Haven Avenue, Alta Loma, CA 91701, 1982.

This bibliography covers vocational guidance materials and activities, ideas about vocational guidance for disabled students, and information for counseling special populations—arranged by disability.

Cost-Effectiveness/Benefit Analysis of Postsecondary Vocational Programs

National Center for Research in Vocational Education, National Center Publications, 1960 Kenny Road, Columbus, OH 43210, $10.00/set

This two-manual set developed by the Indiana State Board of Vocational and Technical Education, includes an Administrator's Manual and a Technical Report. The former is a step-by-step guide on how to evaluate the costs and benefits of a program. The latter describes concepts and provides a postsecondary model with forms to use.

Equity from a Special Education Perspective

National Center for Research in Vocational Education, 1960 Kenny Road, Columbus, OH 43210, 1981, $2.35 prepaid.

In this 34-page booklet, Marc Hull discusses the concept of fairness in terms of handicapped people in vocational education, employment, access, program accommodations, representation in instructional materials, and related areas.

Evaluating Resources for Handicapped Students

Dissemination and Utilization Program, National Center for Research in Vocational Education, 1960 Kenny Road, Columbus, OH 43210, 1979, free.

Susan Hafen and Michael Mangano of the University of Maryland designed this booklet to help teachers and others evaluate resources to determine their suitability for handicapped students.

Handbook of Special Vocational Needs Education

Aspen Systems Corp., 1600 Research Blvd., Rockville, MD 20850, 1980, prepaid $28.95.

This comprehensive treatment of the subject by Gary D. Meers includes curriculum planning, modification and evaluation, support services, counseling, work experience and placement.

Instructional Development for Special Needs Learners: An Inservice Resource Guide

ERIC Document Reproduction Service, P.O. Box 190, Arlington, VA 22210, microfiche, $1.34 or print $24.90 plus shipping not to exceed $2.70. When ordering, give ED# 133940.

This 334 page guide, compiled by Dr. L. Allen Phelps, provides information for vocational teachers and teacher educators about special ways to educate students with special needs.

Puzzled About Educating Special Needs Students? (A Handbook on Modifying Vocational Curricula for Handicapped Students)

Wisconsin Vocational Studies Center, University of Wisconsin-Madison, 964 Educational Sciences Building, 1025 W. Johnson Street, Madison, WI 53706.

A three-part collection of materials developed by a committee headed by Lloyd Tindall. The **Handbook and Bibliography** covers modifying vocational curricula and costs $28.00. The **User's Guide** is for administrators developing inservice programs for teachers and costs $7.00. The audiovisual component, called **Whatever It Takes,** is a set of three filmstrips and cassettes. The set costs $75.00.

"Serving the Handicapped in Vocational Student Organizations," *Voc Ed,* Journal of the American Vocational Association, 2020 N. 14th Street, Arlington, VA 22201, April 1981.

Article describes how student vocational clubs are including handicapped students in their programs.

Tools, Equipment and Machinery Adapted for the Vocational Education and Employment of Handicapped People

University of Wisconsin-Madison: Publications Unit, 265 Educational Sciences Building, 1025 W. Johnson Street, Madison, WI 53706 1981, $36.30 includes postage and handling.

This catalog contains descriptions and illustrations of a large variety of modified tools, equipment and machinery.

Training the Handicapped for Productive Employment

Aspen Systems Corp., 1600 Research Boulevard, Rockville, MD 20850, 1981, $29.95.

This book provides excellent background information, in the following areas: assessment, job development and preparing employers, modifying workstations, finding or devising aids and devices, and task analysis. Includes *task analysis forms.* The book was written by Weisgerber, Dahl, and Appleby of the American Institute for Research in the Behavioral Sciences.

Vocational Education Models for Linking Agencies Serving the Handicapped

Wisconsin Vocational Studies Center, University of Wisconsin-Madison, 964 Educational Sciences Building, 1025 W. Johnson Street, Madison, WI, 53706, 1981.

Series of three volumes. The **Handbook on Developing Effective Linking Strategies** costs $27.00. The **Status Report of Interagency Linkages at the State Level** costs $5.00. The third part is **Interagency Linkages at the Federal Level.**

Vocational Materials 1982

Vocational Studies Center, University of Wisconsin-Madison, 964 Educational Sciences Building, 1025 W. Johnson Street, Madison, WI 53706, free.

An annotated catalog of books and audiovisual tapes and cassettes about vocational education.

Vocational Skills Assessment for Disabled Students

Chaffey College, 5885 Haven Avenue, Alta Loma, CA 91701, 1981, free.

This manual presents a comprehensive overview of vocational evaluation. It includes discussion of specific commercial vocational evaluation tests, interviews and data evaluation, sources of occupational information, and job analysis and modification. When the supply at Chaffey is exhausted, the text will be available through the ERIC Document Reproduction Service (ED #205-702).

SELECTED RESOURCE LIST

ABLEDATA
National Rehabilitation Information Center, 4407 Eighth Street, N.E., Washington, D.C. 20017-2299, (202) 635-5926.
A national computerized databank giving information about commercially available rehabilitation aids and equipment. Also provides names of local distributors, repair and service center, and resources for custom design.

American Vocational Association
2020 N. 14th Street, Arlington, VA 22201.
The national professional organization representing vocational teachers, guidance counselors, administrators, researchers, and teacher educators. It has a Special Needs Division (National Association of Vocational Education Special Needs Personnel, NAVESNP) which includes members who are concerned with serving handicapped students. The AVA publishes a monthly journal, **Voc Ed**, of which the April 1981 issue (Vol. 56, No. 3) is entirely devoted to vocational education of students with disabilities.

Bureau of Apprenticeship and Training
Employment and Training Administration, U.S. Department of Labor, 601 D Street N.W., Washington, D.C. 20213.
Bureau lists the names and addresses of regional and state apprenticeship offices in a booklet called "The National Apprenticeship Program," available at no cost.

ERIC Clearinghouse on Adult, Career and Vocational Education
National Center for Research in Vocational Education at Ohio State U. 1960 Kenny Road, Columbus, OH 43210 (800) 848-4815 toll free.
One of the national information system centers, this clearinghouse provides access to printed information related to adult, career and vocational education.

Johnson County Community College
Director of Special Services, 12345 College at Quivira, Overland Park, KS 66210.
Has looseleaf volumes of sign-language developed for technical vocabularies in: algebra, business terms, data processing, and electronics. Limited copies are available and can be borrowed and photocopied.

Materials Development Center (MDC)
Stout Vocational Rehabilitation Institute, University of Wisconsin-Stout, Menomonie, WI 54751.
MCD develops a wide range of information related to the vocational education of students with disabilities, including a newsletter. In addition, their Job Analysis Exchange contains detailed analyses of 207 different job categories. A catalog is available on request, and individual analyses may be ordered for $0.50 each.

National Association of Trade and Technical School (NATTS)
2021 K Street, N.W., Washington, D.C. 20006, (202) 296-8892.
This organization evaluates private trade and technical schools across the country for accreditation. It's Handbook of Trade and Technical Careers and Training lists those schools by state. It is free of charge.

National Center for Research in Vocational Education
1960 Kenny Road, Columbus, OH 43210 (800) 848-4815 toll free.
The Center's mission is to increase the ability of diverse agencies, institutions, and organizations to solve educational problems relating to individual career planning, preparation, and progression. It publishes and disseminates valuable material and can respond to individual inquiries via the toll free telephone line listed above.

Rehabilitation Engineering Society of North America (RESNA)
Suite 210, 4405 East-West Highway, Bethesda, MD 20814.
Organization can respond by mail to specific questions about modifying existing equipment and designing new devices.

Taking on Tomorrow
Film and book describing post-secondary vocational education programs serving the handicapped. Book available from the National Center for Research in Vocational Education (see below) for $2.35. Film (16 mm. @ $275.00 and video cassette @ $80.00) for sale from the National Audio Visual Center, Washington, D.C. 20409 (301) 763-1896.

Prepared by Nancy L. Stout and Maxine T. Kruhwich, HEATH Resource Center. November 1982.
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